EPA is in the LEED: Region 8's Team Approach Results in Greener Design and Construction

Author(s): Shayne Brady, Tom Slabe, Tim Rehder, Greg Davis, Karl Hermann, Jennifer Slavick, Patti Tyler

Affiliation(s): EPA Region 8, Denver, Colorado

The EPA Region 8 offices will be housed in a new, state-of-the-art, high-performance building, with 250,000 square feet of space, in lower downtown Denver, Colorado.

Partnerships facilitated improvements in building design, incorporating advanced sustainable features. Efforts advocated for design features which will capture the certification of gold LEED rating.

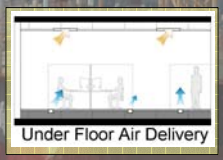
Using a team-approach, the R8 building project "pushes the envelope" in sustainability, and will also enhance comfort and health, which will contribute to increased worker productivity.

Partnering for Energy Management

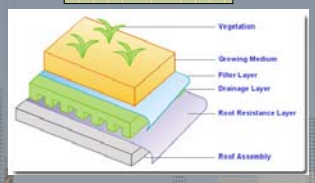
EPA partnered with National Renewable Energy Laboratory (NREL), General Services Administration (GSA) and developer

Designed as one of the most energy efficient office buildings in Denver

Under floor air delivery, natural lighting, premium efficiency motors, district steam, sophisticated automated control system to minimize energy use



Green Roof



Benefits include habitat creation, stormwater retention, reduced 'urban heat island' effect, sound insulation, extended roof life, CO_2 absorption and reduced heating / cooling costs

Above: Green roof vegetation in Monterey, California, also suitable for Denver's semi-arid climate

Partners will create a **'green roof laboratory'** to evaluate selected plant varieties for our semi-arid region and monitor stormwater quality and quantity

Region 8's 20,000 sq ft extensive green roof on three terrace levels has 4" inches of lightweight, engineered growth medium in 2' x 4' modular-trays

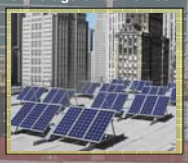
Renewable Energy

Wind Power

100% of electricity use offset by wind power preventing 5,000 tons of global warming gasses from entering atmosphere

Solar Power

10,000 Watt Photovoltaic array power enough for 5 average-sized homes



Biofuels

First construction site in Colorado to fuel heavy equipment with biodiesel

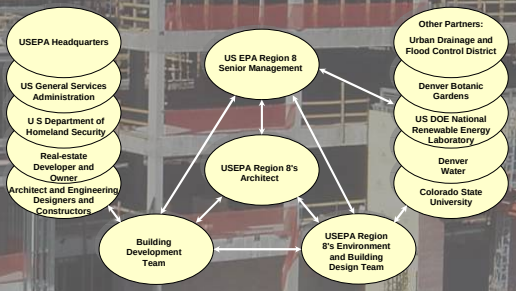
Cleanup of Soil Contaminants

Lower Downtown Denver Historic District once dominated by industrial land uses

Reuse of idle infill sites a federal priority

Soil contaminants found on site

Building Development Team participated in State's Voluntary Brownfield Cleanup Program, which offered financial relief to defray cleanup costs

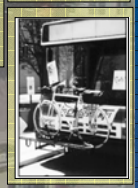


Partnerships Enable Results

Transportation Choices

Building is located adjacent to regional transportation hubs: bus, light rail, and bicycle

Bicycle parking facility has 75 parking spaces, including lockers and shower facilities



Bicyclists can use regional light rail and local and regional buses in combination

Sustainable Design and Environmentally Preferable Materials and Products

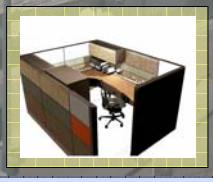
Environmental Best Practices required for design, construction and operations of building

Water Conservation – low flow plumbing fixtures, drought tolerant plantings, site design to minimize stormwater runoff, and high-efficiency irrigation system

Resource Conservation recycled content, rapidly renewable materials (e.g. bamboo) and bio based materials (e.g. corn based plastic in carpet)

Indoor Air Quality protection of HVAC system from contaminants, priority to non-pesticide controls, and use of non-toxic or low toxicity materials and products

Other Considerations – preference to sustainable forest products and purchase of locally harvested, produced and manufactured products



Leadership in Energy and Environmental Design

LEED

Sustainable Sites (14 points)
Water Efficiency (5 points)
Energy & Atmosphere (17 points)
Materials & Resources (13 points)
Indoor Environmental Quality (15 points)
Innovation & Design Process (5 points)

The LEED certification levels are:
Certified: 26-32 points
Silver: 33-38 points
Gold: 39-51 points
Platinum: 52-69 points